

METHOD AND APPARATUS FOR DATA ITEM PROCESSING CONTROL

ABSTRACT OF THE INVENTION

A method and apparatus for packet processing is disclosed. In one embodiment
5 of the invention the method and apparatus is implemented in plurality of pipeline
stages, each stage or group of stages being configured to a particular processing
operation. Each stage may operate simultaneously, if data is available, and
independently. Common data or control words are shared between the various stages
of the pipeline to provide control and supplemental data to each processing stage in the
10 pipeline. In one embodiment the processing pipeline includes one or more dynamic
stages and one or more static stages. The dynamic stages are configured to modify,
remove, or supplement portions of the packet as the packet or portion thereof passes
through the pipeline with the aid of a more flexible control structure. The static stages
are configured to modify, remove, or supplement portions of the packet as the packet
15 or portion thereof passes through the pipeline with the aid of a hardwired system. A
control system is associated with the packet processing system. The control system
includes a central portion and a distributed portion that is associated with each pipeline
stage. High speed operation is achieved through the use of hardware based operation
while processing flexibility is provided by control word association at each processing
20 stage.